

Departures from normal temperature—Continued.

State and station.	(1) Normal for the month of July.	(2) Length of record.	(3) Mean for July, 1893.	(4) Departure from normal.	(5) Extreme monthly mean for July.			
					Highest.	Year.	Lowest.	Year.
New Hampshire.	°	Years	°	— 2.9	72.1	1878	66.3	1893
Hanover	69.2	21	66.3	— 2.9	72.1	1878	66.3	1893
New Mexico.								
Fort Wingate	73.2	22	.....	— 2.8	77.8	1873	68.1	1888
New York.								
Cooperstown	68.2	22	65.4	— 2.8	73.0	1887	64.5	1884
Plattsburg Barracks	69.6	21	67.8	— 1.8	73.2	1887	65.2	1891
North Carolina.								
Lenoir	74.4	20	75.7	+ 1.3	77.7	1877	66.4	1884
Oklahoma.								
Fort Reno	80.7	10	81.0	+ 0.3	84.9	1887	76.2	1891
Fort Sill	82.2	22	85.0	+ 2.8	86.0	1871	77.2	1880
Oregon.								
Bandon	57.6	9	58.0	+ 0.4	59.5	1888	54.6	1887
Pennsylvania.								
Dyberry	67.8	20	65.6	— 2.2	72.6	1887	63.0	1891
Grampian	70.5	22	70.4	— 0.1	76.8	1887	65.4	1891
Wellsville	69.0	14	.....	— 2.4	76.1	1881	60.4	1891
South Carolina.								
Statesburg	78.1	12	80.2	+ 2.1	84.0	1881	74.6	1891
South Dakota.								
Fort Sully	74.8	22	77.2	+ 2.4	80.2	1871	70.9	1884
Texas.								
Austin	84.0	20	85.0	+ 1.0	88.3	1879, 1884	82.0	1877
Silver Falls	80.3	7	82.4	+ 2.1	83.9	1888	74.6	1887
Utah.								
Terrace	82.1	18	.....	— 2.1	89.3	1874	77.6	1875
Vermont.								
Strafford	69.2	20	65.2	— 4.0	73.5	1887	65.2	1893
Virginia.								
Dale Enterprise	75.8	13	73.6	— 2.2	83.0	1887	71.5	1884
Washington.								
Fort Townsend	61.4	19	58.3	— 3.1	66.1	1875	58.3	1893
West Virginia.								
Parkersburg	77.6	12	.....	— 2.1	87.0	1881	68.9	1886
Wisconsin.								
Embarrass	71.0	22	.....	— 2.1	74.7	1874	65.5	1891
Madison	72.1	22	73.0	+ 0.9	75.2	1885	66.6	1891
Wyoming.								
Fort Washakie	69.4	8	67.6	— 1.8	73.7	1886	65.4	1891

TEMPERATURE, JANUARY TO JULY, 1893.

For the period January 1 to July 31, 1893, the temperature averaged about normal in the Gulf States and over the southern plateau region. Over the northern plateau region and on the north Pacific coast the temperature averaged 3 to 4 below, and in the middle Atlantic and New England states, the upper Mississippi and Missouri valleys, on the northeast and middle-eastern slopes of the Rocky Mountains, over the middle plateau region, along the middle Pacific and south Atlantic coasts, in the Lake region, and the Ohio Valley and Tennessee, it averaged 1 to 2 below the normal. On the southeast slope of the Rocky Mountains and in the extreme northwest the mean temperature was 1 to 2 above the normal for the period named.

YEARS OF HIGHEST MEAN TEMPERATURE FOR JULY.

At Raleigh, N. C., Columbia, S. C., Merritts Island, Fla., Palestine and Abilene, Tex., and Lexington, Ky., the mean temperature for the current month was the highest on record for July during the respective periods of observation. The highest mean temperature for July was noted on the south Pacific coast and in the Sacramento Valley in 1891; in the middle Mississippi and Ohio valleys and the lower lake region in 1887, and in the upper lake region in 1878.

YEARS OF LOWEST MEAN TEMPERATURE FOR JULY.

At Hanover, N. H., Strafford, Vt., Carson City, Nev., Keeler,

Cal., and Fort Townsend, Wash., the mean temperature for the current month was the lowest on record for July during the respective periods of observation. The lowest mean temperature for July was noted generally in the central valleys, the Lake region, and Atlantic coast states north of the 35th parallel in 1892; and in the upper Missouri valley in 1884.

MAXIMUM TEMPERATURE.

The highest temperature reported by a regular station of the Weather Bureau was 109 at Yuma, Ariz., on the 10th. The maximum temperature ranged from 105 to 107 in eastern Montana, and reached 107 at Miles City on the 21st, and ranged from 103 to 108 in the central valleys of California. The maximum values were above 100 over the interior of North Carolina and South Carolina, on the Georgia and northern Florida coasts, from the northeast slope of the Rocky Mountains over South Dakota, in Kansas, and from northeastern Texas and northwestern Louisiana over the southern part of the country to southeastern California. The maximum readings were also above 100 in southeastern Washington and northeastern Oregon. At Volcano Springs, in the Colorado Desert, Cal., a maximum reading of 122 was reported. The maximum temperature was below 70 along the immediate Pacific coast north of San Francisco, Cal., and was below 80 along the entire immediate Pacific coast. At Nantucket, Mass., the maximum for the month was 80.

MINIMUM TEMPERATURE.

At Tampa, Fla., Walla Walla, Wash., and San Francisco, Cal., the minimum temperature was the lowest noted for July during the respective periods of observation.

The lowest temperature noted at regular stations of the Weather Bureau for July, 1893, 37, was registered at Havre, Mont., on the 2d, and at Baker City, Oregon, on the 7th. The minimum temperature was below 50 in northern New England, the northern lake region, the Red River of the North Valley, over the middle and northern Rocky Mountain and plateau regions, and along the immediate Pacific coast north of Los Angeles, Cal. The highest minimum temperature, 73, was noted at Key West, Fla. The lowest temperature reached at Yuma, Ariz., was 70.

RANGES OF TEMPERATURE.

The greatest daily ranges of temperature are shown in the table of miscellaneous meteorological data. The greatest monthly ranges of temperature occurred in northeast Montana and Idaho, where they exceeded 60. From the northern Rocky Mountain region the monthly ranges decreased eastward to less than 30 on the south New England coast, southeastward to 20 over extreme southern Florida and to 30 on the middle and west Gulf coasts, and westward to less than 30 on the middle Pacific, and to less than 20 on the north Pacific coasts.

FROST.

Light frost was reported in the interior of Maine on the 10th and 12th; in New Hampshire on the 22d; in western New York on the 24th and 28th; in northeast Indiana and southwest Lower Michigan on the 4th; in the northern Rocky Mountain region on the 7th, 12th, 14th, 23d, 24th, and 28th; in central Oregon on the 5th and 12th; at Happy Valley, Oregon, on the 7th and 8th; and at Vernonia, Oregon, on the 6th, 19th, 20th, and 28th.

PRECIPITATION (expressed in inches and hundredths).

The distribution of precipitation over the United States and Canada for July, 1893, as determined from reports of more than 2,000 stations, is exhibited on Chart III. In the table of miscellaneous meteorological data the total precipitation and the departure from the normal are given for reg-

ular stations of the Weather Bureau. The figures opposite the names of the geographical districts in the columns for precipitation and departure from the normal show, respectively, the averages for the several districts. The normal for any district may be found by adding the departure to the

current mean when the precipitation is below the normal and subtracting when above.

The precipitation for July is usually greatest along the east Gulf and west Florida coasts, where it exceeds 8.00, and the normal amount exceeds 6.00 along the Carolina coast, and in areas in adjoining parts of western Missouri, western Arkansas, and southeastern Kansas. Over the greater part of the country east of the Mississippi River, and in large areas between the Mississippi River and the Rocky Mountains, the average precipitation for July is 4.00 to 6.00. Little or no rain falls in California in July. Over the west part of the plateau region and along the Oregon coast the monthly amount is generally less than 1.00.

In July, 1893, the monthly precipitation was greatest along the Missouri River in central Missouri, where it exceeded 11.00. The monthly precipitation was also in excess of 10.00 at stations in the interior of the Florida Peninsula and in southwestern Alabama. Over the south-central part of the Florida Peninsula, in the interior of western Florida, in southern Georgia, central Alabama, central Mississippi, on the southern coast of North Carolina, on the Virginia coast, in the lower Missouri valley, and at points in eastern Colorado the monthly rainfall exceeded 6.00. Over southern parts of the middle and east Gulf states, along the Atlantic coast south of New Jersey, in small areas throughout the central and eastern districts of the United States, in southeastern Arizona, and at Calgary, Edmonton, and Qu'Appelle, N.W.T., the monthly amount was in excess of 4.00. Less than 1.00 fell over the middle and northern Rocky Mountain and plateau regions and the west part of the southern plateau region, and in the Pacific coast states, save on the immediate Washington coast. Less than 0.25 was noted along the Pacific coast south of the Columbia River, and over the greater part of the middle plateau region.

DEPARTURES FROM NORMAL PRECIPITATION.

Except in irregularly distributed small areas less than the usual amount of precipitation was reported. The most marked deficiency was noted in North Carolina and central Indiana, where it was 4.00, or more. In eastern New York, eastern Pennsylvania, northern New Jersey, eastern Maryland, and the District of Columbia, and generally from the Gulf coast and Florida over the lower Mississippi and lower and middle Ohio valleys, and at Omaha, Nebr., and Davenport, Iowa, the monthly precipitation was 2.00 to 3.00 less than the July average. The greatest excess in monthly rainfall was reported at Montgomery, Ala., Leavenworth, Kans., and Winnipeg, Man., where it was 2.00, or more, and the rainfall was 1.00, or more, in excess of the July average in central Virginia, central and western Missouri, eastern Kansas, and the Saskatchewan Valley.

Considered by districts the monthly precipitation averaged about normal in the upper lake region, the Missouri Valley, on the middle-eastern slope of the Rocky Mountains, over the southern plateau region, and on the middle and south Pacific coasts. Over the middle plateau region the average percentage of the normal was 120. In districts where the precipitation was deficient the percentage of the normal was about as follows: New England, northern plateau, and north Pacific coast, 49; west Gulf states, 51; lower lake region, 60; Ohio Valley and Tennessee, 61; northeast slope of the Rocky Mountains, 63; south Atlantic states, 64; upper Mississippi valley, 65; middle Atlantic states, 69; Key West, Fla., 70; east Gulf states, 72; extreme northwest, 73; southeast slope of the Rocky Mountains, 84.

The following table shows for certain stations, as reported by voluntary observers, (1) the average precipitation for July for a series of years; (2) the length of record during which the observations have been taken and from which the

average has been computed; (3) the total precipitation for July, 1893; (4) the departure of the current month from the average; (5) and the extremes for July during the period of observation and the years of occurrence:

State and station.	(1) Average for the month of July.	(2) Length of record.	(3) Total for July, 1893.	(4) Departure from average.	(5) Extremes for July.			
					Greatest.		Least.	
					Am't.	Year.	Am't.	Year.
Arizona.	Inches.	Years.	Inches.	Inches.	Inches.	1878	0.14	1884
Fort Apache	3.82	17	2.57	- 1.25	8.76	1881	0.00	†
Fort Mohave	0.25	22	.....	.....	1.80	1875	0.00	1877
Whipple Barracks	2.96	22	1.31	- 1.65	5.92	1875	0.55	1877
Arkansas.								
Keesee Ferry	4.74	11	4.75	+ 0.01	11.60	1883	1.15	1888
California.								
Fort Bidwell	0.27	22	0.50	+ 0.23	1.55	1891	0.00	1876, 1889
Riverside	T.	12	.....	.....	0.02	1888	0.00	*
Colorado.								
Las Animas	1.72	10	1.14	- 0.58	4.66	1886	0.22	1890
Florida.								
Merritts Island	5.99	15	4.26	- 1.73	11.72	1884	0.86	1883
Georgia.								
Forsyth	4.76	19	4.99	+ 0.23	12.70	1887	0.32	1878
Idaho.								
Boise Barracks	0.17	19	0.10	- 0.07	0.60	1884	0.00	†
Fort Sherman	0.48	9	0.75	+ 0.27	1.67	1884	0.00	1882, 1883
Indiana.								
Lafayette	3.75	11	1.10	- 2.65	5.81	1884	0.88	1887
Indian Territory.								
Fort Supply	3.90	14	1.60	- 2.30	9.34	1881	0.98	1886
Iowa.								
Cresco	4.26	20	3.85	- 0.41	12.70	1883	1.32	1890
Kansas.								
Independence	4.25	21	2.15	- 2.10	11.56	1875	0.77	1888
Salina	4.17	10	.....	.....	7.20	1885	0.30	1890
Louisiana.								
Grand Coteau	5.95	9	4.06	- 1.89	12.36	1889	1.89	1888
Maine.								
Orono	3.40	23	.....	.....	7.11	1887	1.05	1886
Maryland.								
Cumberland	3.51	21	1.40	- 2.11	5.59	1887	1.01	1885
Michigan.								
Kalamazoo	3.39	17	3.17	- 0.22	6.50	1877	0.79	1887
Missouri.								
Sedalia	3.96	15	10.21	+ 6.25	10.21	1893	0.62	1886
Montana.								
Fort Custer	1.05	12	0.80	- 0.25	2.51	1880	0.06	1890
Nebraska.								
Fort Robinson	2.21	9	1.66	- 0.55	3.24	1891	0.74	1886
Genoa (near)	2.42	17	4.41	+ 0.19	7.45	1876	0.90	1877
Nevada.								
Browns	0.06	22	.....	.....	0.69	1876	0.00	*
Carson City	0.19	15	T.	- 0.19	1.25	1886	0.00	†
New Hampshire.								
Hanover	3.42	20	2.97	- 0.45	8.48	1877	1.66	1884
New Mexico.								
Fort Wingate	2.12	22	3.60	+ 1.48	4.64	1883	0.26	1873
New York.								
Cooperstown	3.39	22	4.85	+ 1.46	7.80	1892	1.52	1888
Plattsburg Barracks	3.66	22	3.34	- 0.32	9.18	1874	1.12	1888
North Carolina.								
Lenoir	4.77	20	3.30	- 1.47	9.10	1886	1.70	1884
Oklahoma.								
Fort Reno	2.57	10	5.62	+ 3.05	6.97	1891	0.82	1886
Fort Sill	2.57	22	1.91	- 0.66	8.21	1875	0.19	1871
Oregon.								
Bandon	0.65	14	0.01	- 0.64	1.90	1878	0.00	1885
Pennsylvania.								
Dyberry	4.68	22	4.62	- 0.06	9.28	1887	1.70	1885
Grampian	5.00	22	4.21	- 0.79	7.33	1889	2.41	1892
Wellsboro	5.95	14	.....	.....	12.30	1880	2.15	1892
South Carolina.								
Statesburg	4.77	12	3.43	- 1.34	8.34	1890	1.70	1884
South Dakota.								
Fort Sully	2.83	22	4.80	+ 1.97	7.45	1878	0.25	1890
Texas.								
Austin	1.88	20	0.25	- 1.63	5.16	1874	0.00	1871, 1884
Silver Falls	1.95	6	0.01	- 0.94	3.06	1886	1.01	1893
Utah.								
Terrace	0.15	20	.....	.....	0.75	1874	0.00	†
Vermont.								
Strafford	4.37	20	3.34	- 1.03	6.77	1873	0.91	1892
Virginia.								
Dale Enterprise	4.47	13	3.10	- 1.37	7.05	1887	1.13	1883
Washington.								
Fort Townsend	0.82	18	0.41	- 0.41	4.41	1888	0.01	1889
West Virginia.								
Parkersburg	5.32	8	.....	.....	10.33	1888	2.17	1885
Wisconsin.								
Emarrass	4.43	22	.....	.....	10.45	1885	0.85	1877
Madison	4.16	22	4.64	+ 0.48	9.47	1881	0.79	1886
Wyoming.								
Fort Washakie	0.79	8	0.07	- 0.72	1.26	1886	0.07	1893

*Generally.

† Frequently.

PRECIPITATION, JANUARY TO JULY.

For the period January to July, 1893, inclusive, the precipitation averaged about normal in the middle Atlantic and New England states, the Lake region, the upper Mississippi and

Missouri valleys, the Ohio Valley and Tennessee, the extreme northwest, over the southern and middle plateau regions, and on the middle Pacific coast. Over the northern plateau region and on the north and south Pacific coasts the precipitation was two-tenths to three-tenths greater than usual. In the south Atlantic and Gulf states, at Key West, Fla., and on the eastern slope of the Rocky Mountains six-tenths to eight-tenths of the usual amount of precipitation was reported for the period named.

YEARS OF GREATEST PRECIPITATION FOR JULY.

Exceptionally heavy monthly precipitation was not reported for the current month. In the middle Mississippi and middle and lower Ohio valleys the greatest precipitation for July was noted in 1875. Elsewhere the years of greatest precipitation were noted only in small areas.

YEARS OF LEAST PRECIPITATION FOR JULY.

At Portland, Me., Manchester, N. H., Albany and New York, N. Y., Raleigh, N. C., Chattanooga, Tenn., Lexington, Ky., Columbus, Ohio, Valentine, Nebr., Fort Washakie, Wyo., Eureka, Cal., and Fort Canby, Wash., the precipitation for the current month was the least reported for July during the respective periods of observation. In preceding years the least precipitation for July was confined to small areas.

EXCESSIVE PRECIPITATION.

The following tables show, by states, the number of stations reporting monthly precipitation to equal or exceed 10.00; precipitation to equal or exceed 2.50 in 24 hours; and precipitation to equal or exceed 1.00 in 1 hour in July, 1893:

Monthly precipitation to equal or exceed 10.00.

State.	Number of stations.	State.	Number of stations.
Missouri.....	7	Florida	1
Alabama	1		

Precipitation to equal or exceed 2.50 in 24 hours.

State.	Number of stations.	Dates.	State.	Number of stations.	Dates.
Missouri.....	22	4, 4-5, 5, 9, 14, 15, 17, 17-18, 29, 29, 30, 30.	Iowa	4	5, 6-7, 14, 17-18.
South Carolina ...	8	10, 11-12, 19, 20-21, 21, 25, 25-26.	Colorado	3	8, 25, 30.
Wisconsin.....	8	5-6, 7, 8, 11, 14, 20-27, 29-30.	Minnesota	3	7, 10-11, 11.
Kansas	7	17, 17-18, 25-26, 26,	Nebraska	3	1, 27-28, 29-30.
Georgia.....	6	11, 16-17, 17, 18, 20, 27-28.	Alabama	2	18, 19, 28.
North Carolina ...	6	2, 9, 10-20, 25, 30.	Arizona	2	21, 22-23.
Kentucky	5	18, 21, 31.	Ohio	2	16, 31.
Louisiana	5	1, 7, 11, 18, 29, 31.	South Dakota	2	3-4, 5.
Virginia	5	1-2, 16, 31.	Florida	1	27.
Arkansas	4	*16-17, 30-31.	Delaware	1	31.
Indian Territory..	4	1-2, 17-18, 18, 24-25.	Illinois	1	30.

*June 30-July 1.

Precipitation to equal or exceed 1.00 in 1 hour.

Georgia.....	16	2, 7, 9, 10, 15, 16, 17, 19, 21, 27, 28,	Ohio	8	6, 8, 13, 16, 26, 29,
Louisiana.....	16	1, 4, 5, 11, 13, 17, 18, 19, 21, 22,	Illinois	6	3 ^x .
Florida.....	12	1, 2, 6, 8, 9, 17, 18, 21, 22, 24, 29, 31.	Colorado	5	5, 8, 16, 30.
Arkansas	11	*2, 4, 9, 10, 13, 24, 31.	Tennessee	5	7, 8, 28, 29.
Nebraska	11	1, 4, 13, 15, 16, 18, 25, 30.	Wisconsin	5	5, 13, 17, 27.
North Carolina ...	10	2, 9, 15, 19, 20, 25, 26, 30, 31.	Alabama	4	7, 8, 14, 15.
Kansas	9	1, 4, 17, 18, 21, 28,	Kentucky	4	2, 7, 15, 18.
Missouri	9	5, 9, 15, 17, 18, 25, 31.	South Dakota	4	1, 5, 10.
South Carolina ...	9	8, 10, 20, 21, 22, 24, 25, 26, 31.	Virginia	4	1, 14, 15, 16, 29.
Mississippi.....	8	2, 13, 18, 20, 22, 27.	West Virginia	3	8, 17.

Precipitation to equal or exceed 1.00 in 1 hour—Continued.

State.	Number of stations.	Dates.	State.	Number of stations.	Dates.
Utah.....	2	19, 21.	Maryland	1	31.
Connecticut	1	5.	Nevada	1	21.
Indiana	1	15.	Texas	1	10.
Indian Territory..	1	2.	Vermont	1	17.

* June 30.

Table of excessive precipitation, July, 1893.

State and station.	Monthly rainfall to inches, or more.	Rainfall 2.50 inches, or more, in 24 hours.		Rainfall 1 inch, or more, in one hour.	
		Amt.	Day.	Amt.	Day.
Alabama.	Inches.	Inches.	Inches.	h. m.	
Eufaula c.				1-58	1 03
Gadsden.	12.22			1-89	1 00
Healing Springs.					14
Lynna		2.80	18-19	1-21	0 30
Montgomery					19
Newton		2.84	28	1-15	1 00
Selma					9
Arizona.					
Bisbee				1-30	1 00
Farleys Camp.	3.00	22-23	2.00	1 00	22
Phoenix	3.00	21			
Arkansas.					
Arkadelphia				2-05	1 00
Brinkley	3.00	*			9
Camden b.				1-20	1 00
Do.				1-55	1 30
Corning				1-27	0 35
Helena d.	3-03	*		2-03	2 00
Do.				1-30	1 00
Helena b.				1-20	0 45
Hot Springs				1-10	1 00
Keesees Ferry				1-28	0 35
Marcella				1-25	1 00
Marshall				2-30	1 15
Rison				1-65	31
Rogers					
Washington b.				1-68	0 30
Colorado.					24
Deer Trail	4.00	25			
Greenhorn				1-30	1 00
River Bend	2.50	30	2.00	0 40	28
Rocky Ford	6.20	8	6.20	6 00	8
Wallet				1-20	0 30
Yuma				1-30	1 00
Connecticut.					28
Norwalk				1-37	1 15
Delaware.					5
Seaford	3.50	31			
Florida.					
Avon Park				1-59	1 00
Brooksville				1-67	1 30
Clermont				1-93	1 00
Federal Point				2-25	2 00
Hypoluxo				2-00	1 00
Do.				1-03	0 40
Jacksonville				1-02	0 45
Do.				1-75	1 00
Jupiter				2-15	0 49
Lake City				1-86	1 00
Moseley Hall				1-39	1 00
Oxford	12.56	5-10	27		
Plant City				1-83	1 30
Saint Francis Barracks				2-30	1 00
Do.				1-50	1 30
Titusville				1-15	1 12
Do.				1-65	1 10
Georgia.					24
Alapaha				1-02	1 00
Albany				1-58	1 00
Columbus				1-50	0 30
Cordele				2-05	1 10
Do.				1-30	1 10
Eastman				1-00	1 00
Do.				1-76	1 00
Forsyth	2.98	18			28
Fort Gaines				1-92	1 00
Hawkinsville				2-26	1 30
Marshallville	4-17	16-17	1-52		21
Milledgeville				1-40	1 00
Do.				2-50	2 00
Morgan	3-74	11			17
Mount Vernon				1-64	1 15
Point Peter				2-50	2 00
Resaca				1-59	1 00
Savannah				1-19	1 00
Way Cross				1-39	0 35
Do.				2-40	1 30
West Point	2.57	27-28	2-13	2 00	28
Pennsylvania....	2	7, 26.			16
Illinois.					
Beardstown				2-00	2 00
Chester				2-27	0 20
Golconda				1-12	0 20
Herrins Prairie				1-15	1 00

Table of excessive precipitation—Continued.

Table of excessive precipitation—Continued.

State and station.	Monthly rainfall to inches, or more.	Rainfall 2-50 inches, or more, in 24 hours.		Rainfall of 1 inch or more, in one hour.	
		Amt.	Day.	Amt.	Time.
<i>Illinois—Continued.</i>	<i>Inches.</i>	<i>Inches.</i>	<i>2-50</i>	<i>Inches.</i>	<i>h. m.</i>
Mattoon.....		2-85	30	2-75	2 00
Peoria ^b				2-05	0 30
<i>Indiana.</i>					
Farmland.....		2-88	15	2-88	1 30
<i>Indian Territory.</i>					
Colbert.....		2-78	24-25		
Lehigh.....		3-40	18		
Purcell.....		2-50	17-18	1-18	0 45
South McAlester.....		3-18	1-2		
<i>Iowa.</i>					
Blakeville.....				1-90	1 30
Clarinda.....		3-05	14		
Do.....		3-05	17-18	1-35	1 05
Clinton.....				1-50	1 15
Spirit Lake.....				2-01	2 00
Storm Lake.....		3-39	6-7		
Williams.....		3-15	5	3-15	2 30
<i>Kansas.</i>					
Achilles.....		2-50	26		
Cawker City.....		3-00	26	2-00	1 30
Collyer.....		2-75	25-26		
Dodge City.....				1-23	1 00
Gove City.....		3-00	17	3-00	1 30
Grinnell.....				2-00	1 45
Do.....				2-00	1 30
Halstead.....				1-17	1 00
Horton.....				1-30	0 55
Monument.....				1-50	0 45
Oberlin.....		5-57	26-27		
Do.....		3-19	29-30		
Oswego.....		3-60	17-18	1-50	1 00
Do.....				2-10	1 00
Pleasant Dale.....		2-92	17-18	2-00	1 00
<i>Kentucky.</i>					
Bowling Green.....		3-32	18	3-32	3 00
Burnside.....		3-20	21		
Edmonton.....		2-60	30		
Eubanks.....				1-65	1 05
Franklin.....		2-60	30		
Greendale.....				2-00	1 40
Greensburg.....		2-66	†		
Matlock.....				1-10	1 00
<i>Louisiana.</i>					
Alexandria.....				1-25	0 50
Cameron.....		4-00	II		
Clinton.....				1-80	1 20
Covington.....				2-01	1 30
Davis.....				1-62	1 45
Emilie.....				1-73	1 00
Franklin.....				1-42	0 55
Grand Coteau.....				1-70	1 00
Hamburg.....		2-92	1		
Do.....		2-50	18	2-92	1 30
Hammond.....				2-50	2 30
Do.....				1-50	1 20
Lafayette.....		2-59	II	1-44	1 00
Lake Charles.....		2-50	7		
Lawrence.....				1-20	1 00
Do.....				1-85	1 15
Monroe.....				1-11	0 50
Paincourtville.....				2-15	1 15
Roseland.....				2-04	0 45
Schriever.....				1-15	1 00
Wallace.....				2-01	1 00
Do.....		3-01	29	3-01	2 00
West End.....				2-10	1 30
<i>Maryland.</i>					
Cambridge.....		5-12	31	4-00	2 00
<i>Massachusetts.</i>					
Framingham.....				1-49	1 00
Lake Cochituate.....				1-21	0 45
<i>Michigan.</i>					
Berlin.....				1-14	0 50
Lake City.....				1-71	0 30
<i>Minnesota.</i>					
Ada.....		3-20	II		
Fergus Falls.....		2-92	7		
Morris.....		4-00	10-11		
<i>Mississippi.</i>					
Duck Hill.....				1-02	1 00
Fayette.....				1-05	1 00
Hattiesburg.....				1-13	0 30
Macon.....				1-08	0 50
Meridian.....				1-04	1 00
Thornton.....				1-82	1 00
Vaiden.....				1-70	1 00
Woodville.....				1-25	1 00
<i>Missouri.</i>					
Arlington.....				2-01	1 06
Big Piney.....		2-70	5	2-70	2 00
Boonville.....	11-32	3-35	4-5		
Bryant.....				2-25	2 00
Carrolton.....	11-28	3-75	4-5		
East Lynne.....		2-92	30		
Eight Mile.....		2-70	29-30		
Emma.....	11-93	3-80	4		
Do.....		2-88	15		
Gainesville.....		2-64	9	2-64	1 00
Gallatin.....				1-97	1 00
Glensted.....	10-60	2-70	29		

Table of excessive precipitation—Continued.

State and station.	Monthly rainfall, in inches, or more.	Rainfall 2-50 inches, or more, in 24 hours.		Rainfall of 1 inch, or more, in one hour.	
		Amt.	Day.	Amt.	Time.
<i>Missouri—Continued.</i>					
Grove Dale	Inches.	Inches.	Inches.	h. m.	
Humansville				1-00	0 10
Do.				1-44	0 34
Lamonte	18-30	5-09	4-5	1-00	0 40
Lexington		6-44	4-5		
Do.		2-80	15		
Do.		3-75	30		
Marshall	10-85	4-66	4-5		
New Palestine		4-70	4-5		
Do.		2-63	15		
Pickering		3-84	14		
Platte River		4-69	4-5		
Do.		2-54	15		
Princeton		2-76	14-15		
Saint Charles b		3-05	17		
Saint Joseph		2-50	4-5		
Sedalia	10-21	3-56	4-5		
Springfield		3-30	17-18	2-50	1 05
Stellads		4-41	5		
Do.		2-55	15		
Vermont	10-43	3-02	29-30		
Warrensburg		5-50	5		
Whiteside				1-05	1 00
<i>Nebraska.</i>					
Bassett				1-03	1 00
Beatrice				1-18	0 45
Beaver City		2-63	29-30		
Cooleyton				1-25	0 35
Franklin				1-40	1 00
Minden		2-55	1	2-55	1 50
Nebraska City				1-02	1 00
Do.				1-45	1 00
Ponca		2-95	27-28		
Santee Agency				1-05	0 50
Seward				1-10	0 30
Do.				1-00	1 00
State Farm				1-06	1 00
Turlington				1-49	1 00
Wilcox				1-60	0 40
Do.				2-45	0 45
<i>Nevada.</i>					
Palmetto				1-24	0 45
<i>New Jersey.</i>					
Oceanic				1-32	1 12
Rancocas				1-25	0 20
<i>New York.</i>					
Easton				0-99	0 15
Ithaca		2-70	8		
Attica				1-00	0 10
<i>North Carolina.</i>					
Bakersville				1-10	1 00
Charlotte				2-30	1 30
Greensboro				1-35	0 25
Highlands				1-02	0 50
Do.		3-12	25	3-12	1 50
Lewiston		3-66	9	3-66	2 05
Lumberton		3-96	19-20		
Newbern				1-35	0 25
Sloan		2-50	2	2-50	0 40
Southern Pines		3-00	30	3-00	3 00
Southport		3-75	19-20		
Weldon				1-67	1 40
Wilmington				1-16	1 00
<i>North Dakota.</i>					
Power				1-55	1 30
Wild Rice				1-03	0 23
<i>Ohio.</i>					
Canton		3-13	31	3-10	1 15
Cheeshire				1-01	0 34
Cincinnati				1-00	0 43
Circleville				1-67	1 00
Gratiot				1-23	0 45
Do.				1-84	1 15
Do.				1-17	0 55
McLuney				1-24	1 00
New Holland		3-17	16		
Orangeville				1-00	0 50
Stoutsville				1-45	1 00
<i>Pennsylvania.</i>					
Lycippus				2-15	2 00
Pittsburg				1-00	0 30
<i>South Carolina.</i>					
Batesburg				1-37	0 30
Charleston		2-83	10	2-18	0 27
Georgetown		3-24	11-12		
Kitchens Mills				1-00	1 00
Mount Carmel				1-85	1 00
Saint Stephens		3-51	19		
Sedalia		3-25	21		
Simpsonville				1-01	0 35
Tillers Ferry a		3-33	25-26		
Tillers Ferry b		3-13	25		
Trenton				2-09	1 05
Trial		4-12	10	4-12	4 00
Do.				1-85	1 00
Watts				1-51	1 00
Youngs Island		3-63	20-21	1-71	1 30
Do.				1-07	1 00
<i>South Dakota.</i>					
Alexandria				1-05	1 00

Table of excessive precipitation—Continued.

State and station.	Monthly rainfall inches, or more.	Rainfall 2.50 inches, or more, in 24 hours.		Rainfall of 1 inch, or more, in one hour.	
		Amt.	Day.	Amt.	Time.
<i>South Dakota—Continued.</i>					
Fort Sully.....	Inches.	Inches.		Inches.	h. m.
Gary.....				2.95	0 40
Huron.....		2.62	3-4	1.45	1 00
Mellette.....		2.95	5	1.27	1 15
Rosebud.....					
<i>Tennessee.</i>					
Harriman.....				1.19	1 00
Jackboro.....				1.76	0 45
Lookout Mountain.....				2.13	2 00
Rugby.....				1.95	1 40
Waynesboro.....		4.00	30-31	1.40	0 30
Wier.....				1.13	0 30
<i>Texas.</i>					
Stella.....				1.83	1 30
Parowan.....				2.01	0 30
Scofield.....				1.00	1 00
Cornwall.....				1.00	1 15
<i>Virginia.</i>					
Ashland.....				1.13	1 00
Clarksville.....		2.68	†	1.95	1 55
Columbia.....				1.29	1 10
Do.....				1.20	1-2
Hampton.....		4.22	1-2	1.70	1 15
Norfolk.....				1.00	1 00
Do.....				3.05	†
Nottoway.....				2.50	16
Saluda.....				2.75	34
Do.....					
<i>West Virginia.</i>					
Harpers Ferry.....				1.38	1 10
Martinsburg.....		2.55	14	1.09	1 00
Spencer.....				1.10	0 40
<i>Wisconsin.</i>					
Baraboo.....		4.80	7		
Beaver Dam.....		3.08	5-6		
Beloit.....				1.41	1 00
Black River Falls.....				1.47	0 25
Butternut.....		2.95	11		
Cadiz.....				1.04	1 00
Grandon.....		3.30	11		
Fond du Lac.....		2.79	14		
Juneau.....		3.14	7		
Milwaukee.....				1.18	1 00
Oshkosh.....		2.58	7-8		
Reedsburg.....		3.14	7-8	1.52	1 00

Received too late for publication in June, 1893.

Missouri.				1-30	1 00	10
Vilas.....						
<i>Mississippi.</i>						
Aberdeen.....		3.10	5			
Columbus a.....		2.75	1		1 00	1
Gibson.....		3.50	25			

*June 30

† June 30-July 1

MAXIMUM RAINFALL IN ONE HOUR OR LESS.

The following table is a record of the heaviest rainfall during July, 1893, for periods of five and ten minutes and one hour, as reported by regular stations of the Weather Bureau furnished with self-registering gauges:

Maximum rainfall in one hour or less.

Station.	Maximum fall in—					
	5 min.	Date.	10 min.	Date.	1 hour.	Date.
Atlanta, Ga.....	Inch.		Inch.		Inch.	
Baltimore, Md.....	0.25	31	0.45	31	0.71	14
Bismarck, N. Dak.....	0.30	8	0.30	8	0.70	8
Boston, Mass.....	0.24	27	0.27	27	0.37	5
Buffalo, N. Y.....	0.14	22	0.20	22	0.37	22
Cincinnati, Ohio.....	0.15	8	0.20	26	0.40	26
Chicago, Ill.....	0.25	8	0.35	26	1.00	26
Cleveland, Ohio.....	0.17	8	0.23	9	0.39	9
Denver, Colo f.....	0.07	6	0.13	6	0.42	6
Detroit, Mich.....	0.15	30	0.25	30	0.37	30
Dodge City, Kans.....	0.22	13	0.35	13	1.87	7
Duluth, Minn.....	0.30	15	0.56	21	1.23	21
Eastport, Me.....	0.20	7	0.25	7	0.58	7
Galveston, Tex.....	0.12	26	0.17	26	0.64	26
Indianapolis, Ind.....	0.45	12	0.75	12	0.85	12
	0.05	26	0.06	26	0.13	26

Maximum rainfall in one hour or less—Continued.

Station.	Maximum fall in—					
	5 min.	Date.	10 min.	Date.	1 hour.	Date.
Jacksonville, Fla.....	Inch.		Inch.		Inch.	
Jupiter, Fla.....	0.55	8	0.85	8	1.75	31
Kansas City, Mo.....	0.40	2	0.60	2	2.15	2
Key West, Fla.....	0.28	4	0.43	4	0.98	4
Marquette, Mich.....	0.41	23	0.65	23	0.90	23
Memphis, Tenn*.....	0.25	24	0.40	24	0.80	24
Milwaukee, Wis.....	0.35	9, 15	0.50	15	1.18	15
New Orleans, La.....	0.68	12	0.81	12	0.82	12
New York, N. Y.....	0.21	26	0.30	26	0.35	26
Norfolk, Va.....	0.48	16	0.91	16	1.30	1
Omaha, Nebr.....	0.15	4	0.20	4	0.50	1
Philadelphia, Pa.....	0.18	17	0.25	17	0.52	17
Pittsburg, Pa.....						
Portland, Oregon*.....						
Saint Louis, Mo.....	0.21	28	0.37	28	0.96	17
Saint Paul, Minn.....	0.20	7	0.27	7	0.60	7
Salt Lake City, Utah.....	0.27	27	0.32	27	0.61	23
San Diego, Calif.....						
San Francisco, Calif.....						
Savannah, Ga.....	0.30	2	0.38	15	1.19	15
Tampa, Fla.....	0.20	31	0.25	31	0.50	31
Washington, D. C.....	0.08	8	0.15	8	0.35	8
Wilmington, N. C.....	0.23	15	0.43	15	1.16	15

* Less than 0.05 in 1 hour.

† Self-register out of order.

‡ Record incomplete.

The following tables show the number of years for which monthly precipitation to equal or exceed 10.00 inches, daily precipitation to equal or exceed 2.50 inches, and hourly precipitation to equal or exceed 1.00 inch has been reported in the several states and territories for July during the last 24 years:

Excessive monthly precipitation.

State.	No. years noted.	State.	No. years noted.
Florida.....	18	Maryland.....	3
North Carolina.....	13	Minnesota.....	3
Georgia.....	12	The Dakotas.....	2
New Hampshire.....	11	Virginia.....	2
Alabama.....	10	West Virginia.....	2
South Carolina.....	10	Colorado.....	1
Iowa.....	9	Connecticut.....	1
Louisiana.....	8	Delaware.....	1
Kansas.....	8	District of Columbia.....	1
Missouri.....	8	Indian Territory.....	1
Ohio.....	7	Kentucky.....	1
Indiana.....	6	Arizona.....	0
Nebraska.....	6	Idaho.....	0
Pennsylvania.....	6	California.....	0
New York.....	5	Maine.....	0
Tennessee.....	5	Nevada.....	0
Mississippi.....	5	New Mexico.....	0
Massachusetts.....	4	Oregon.....	0
Michigan.....	4	Rhode Island.....	0
Texas.....	4	Utah.....	0
Illinois.....	3	Vermont.....	0
New Jersey.....	3	Arkansas.....	0
Arkansas.....	3	Washington.....	0
Wisconsin.....	3	Wyoming.....	0

Excessive daily precipitation (24 hours).

Kansas.....	20	Kentucky.....	8
Iowa.....	19	New Jersey.....	7
Indiana.....	18	Virginia.....	7
North Carolina.....	17	Connecticut.....	6
Georgia.....	16	New Hampshire.....	6
Nebraska.....	16	West Virginia.....	5
South Carolina.....	16	Indiana Territory.....	5
Pennsylvania.....	15	Arkansas.....	5
Florida.....	15	District of Columbia.....	5
Texas.....	14	Arizona.....	4
The Dakotas.....	14	Montana.....	3
Illinois.....	13	Rhode Island.....	3
Louisiana.....	13	Delaware.....	3
Ohio.....	13	Colorado.....	3
Alabama.....	12	Maine.....	2
Missouri.....	11	New Mexico.....	2
New York.....	11	Oregon.....	1
Tennessee.....	11	Vermont.....	1
Wisconsin.....	10	California.....	0
Mississippi.....	10	Idaho.....	0
Maryland.....	10	Nevada.....	0
Massachusetts.....	10	Utah.....	0
Minnesota.....	9	Washington.....	0
Michigan.....	8	Wyoming.....	0

Excessive hourly precipitation.

State.	No. years noted.	State.	No. years noted.
Iowa.....	18	Maryland.....	6
Pennsylvania.....	16	Kentucky.....	5
Kansas.....	16	Wisconsin.....	5
North Carolina.....	16	Colorado.....	4
Illinois.....	15	Wyoming.....	4
Alabama.....	14	New Mexico.....	4
Florida.....	14	West Virginia.....	4
Indiana.....	14	New Jersey.....	4
Nebraska.....	14	Missouri.....	4
Michigan.....	13	Maine.....	3
The Dakotas.....	12	Indian Territory.....	3
Georgia.....	12	Connecticut.....	3
New York.....	12	District of Columbia.....	2
Texas.....	11	New Hampshire.....	2
Virginia.....	10	Nevada.....	1
Ohio.....	10	California.....	1
Louisiana.....	10	Montana.....	1
South Carolina.....	10	Utah.....	1
Tennessee.....	10	Vermont.....	1
Arkansas.....	9	Delaware.....	0
Minnesota.....	8	Idaho.....	0
Arizona.....	8	Oregon.....	0
Massachusetts.....	7	Rhode Island.....	0
Mississippi.....	7	Washington.....	0

The following tables give exceptionally heavy monthly, daily, and hourly precipitation reported for July during the last 23 years:

Monthly.

Station and state.	Am't.	Year.	Station and state.	Am't.	Year.
	Inches.			Inches.	
White, Tenn.....	28.11	1883	Wilmington, N. C.....	21.12	1886
Mount Washington, N. H.....	23.90	1884	Auburn, Ala.....	21.09	1887
Macon, Miss.....	23.57	1892			

Daily (24 hours).

Station and state.	Amount.	Date.	Station and state.	Amount.	Date.
	Inches.			Inches.	
Edwards, Miss.....	16.70	6-8, 1892	Grand Junction, Tenn.....	6.10	13-14, 1890
Tuscumbia, Ala.....	10.00	9-10, 1892	Payson, Ariz.....	6.09	25-26, 1892
Union Point, Ga.....	10.00	29, 1887	Charleston, S. C.....	6.07 ³	27-28, 1890
Saint Andrews Bay, Fla.....	9.85	8-10, 1892	De Land, Fla.....	6.05	12-13, 1891
South Orange, N. J.....	8.57	30-31, 1889	Centerville, Iowa.....	6.00	1, 1892
Columbus, Miss.....	8.30	7-8, 1892	Opelousas, La.....	6.00	25-27, 1892
Fort Barrancas, Fla.....	8.28	22-23, 1890	Russellville, Ark.....	6.00	29, 1890
Logan, Iowa.....	8.00	10, 1878	Oberlin, Kans.....	5.57	26-27, 1893
Okolona, Miss.....	7.90	8-9, 1892	Warrensburg, Mo.....	5.50	5, 1893
Minneapolis, Minn.....	7.80	26-27, 1892	Houma, La.....	5.47	8-10, 1892
Plaquemine, La.....	7.75	5, 1891	Lake Charles, La.....	5.40	27, 1892
Independence, Mo.....	7.01	14, 1885	Manhattan, Kans.....	5.38	23, 1890
Wilmington, N. C.....	7.33	15, 1886	Houma, La.....	5.35	25-26, 1892
Agricultural Col., Miss.....	7.24	7-8, 1892	Manchester, N. H.....	5.17	23-24, 1887
Humbleville, Pa.....	7.00	26, 1879	Rock Island Ar's'l, Ill.....	5.16	13, 1890
Marengo, Ind.....	7.00	23, 1890	Cambridge, Md.....	5.12	31, 1893
Lexington, Mo.....	6.44	4-5, 1893	Maple Plains, Minn.....	5.11	26-27, 1892
Cheboygan, Mich.....	6.34	7-8, 1890	Oxford, Fla.....	5.10	27, 1893
Hudson, Wis.....	6.30	27, 1892	Lamotte, Mo.....	5.09	4-5, 1893
Greenville, Miss.....	6.21	27-28, 1891	Edwards, Miss.....	5.00	7-8, 1892
Rocky Ford, Colo.....	6.20	8, 1893	Fort Clark, Tex.....	5.00	10, 1893
Corydon, Iowa.....	6.19	1-2, 1892			

One hour and less.

Station and state.	Amount.	Time.	Date.
	Inches.	h. m.	
New Orleans, La.....	0.68	0 05	12, 1893
Jacksonville, Fla.....	0.55	0 05	8, 1893
Norfolk, Va.....	0.48	0 05	16, 1893
Savannah, Ga.....	0.47	0 05	18, 1891
Galveston, Tex.....	0.45	0 05	12, 1893
Jupiter, Fla.....	0.45	0 05	21, 1891
Do.....	0.43	0 05	21, 1890
Key West, Fla.....	0.41	0 05	23, 1893
Boston, Mass.....	0.40	0 05	4, 1891
Jupiter, Fla.....	0.40	0 05	14, 1890
Chicago, Ill.....	0.40	0 05	6, 1891
Dodge City, Kans.....	0.40	0 05	8, 1890
Savannah, Ga.....	0.40	0 05	15, 1891
Washington, D. C.....	0.40	0 05	26, 1892
Saint Paul, Minn.....	0.40	0 05	10, 1892
Wilmington, N. C.....	0.38	0 05	15, 1893
Milwaukee, Wis.....	0.35	0 05	9, 1893
Do.....	0.35	0 05	

One hour and less—Continued.

• Station and state.			Amount.	Time.	Date.
Detroit, Mich.....	0.35	0 05	Inches.	h. m.	
Saint Louis, Mo.....	0.35	0 05	0.25	27, 1892	
Tampa, Fla.....	0.35	0 05	0.35	13, 1892	
Savannah, Ga.....	0.33	0 05	0.30	7, 1892	
Atlanta, Ga.....	0.32	0 05	0.30	18, 1892	
Cleveland, Ohio.....	0.32	0 05	0.32	12, 1892	
Washington, D. C.....	0.32	0 05	0.32	24, 1892	
Philadelphia, Pa.....	0.31	0 05	0.31	14, 1892	
Savannah, Ga.....	0.30	0 05	0.30	3, 1893	
Baltimore, Md.....	0.30	0 05	0.30	8, 1893	
Dodge City, Kans.....	0.30	0 05	0.30	15, 1893	
Indianapolis, Ind.....	0.30	0 05	0.30	26, 1892	
Washington, D. C.....	0.30	0 05	0.30	2, 1890	
Norfolk, Va.....	0.29	0 05	0.29	2, 1892	
Kansas City, Mo.....	0.28	0 05	0.28	4, 1893	
Salt Lake City, Utah.....	0.27	0 05	0.27	27, 1893	
Boston, Mass.....	0.25	0 05	0.25	3, 1892	
Memphis, Tenn.....	0.25	0 05	0.25	11, 1892	
Atlanta, Ga.....	0.25	0 05	0.25	31, 1893	
Cincinnati, Ohio.....	0.25	0 05	0.25	8, 1893	
Marquette, Mich.....	0.25	0 05	0.25	24, 1893	
New York, N. Y.....	0.25	0 05	0.25	3, 1892	
Huron, S. Dak.....	0.25	0 05	0.25	20, 1885	
Albany, N. Y.....	0.22	0 05	0.22	10, 1876	
Grove Dale, Kans.....	0.20	0 05	0.20	17, 1893	
Utica, N. Y.....	0.20	0 05	0.20	8, 1893	
Savannah, Ga.....	0.20	0 05	0.20	18, 1891	
Norfolk, Va.....	0.19	0 05	0.19	16, 1893	
Jacksonville, Fla.....	0.18	0 05	0.18	8, 1893	
New Orleans, La.....	0.18	0 05	0.18	12, 1893	
Galveston, Tex.....	0.17	0 05	0.17	12, 1893	
Saint Paul, Minn.....	0.17	0 05	0.17	26, 1892	
Dubuque, Iowa.....	0.17	0 05	0.17	6, 1892	
Key West, Fla.....	0.16	0 05	0.16	23, 1893	
Jupiter, Fla.....	0.16	0 05	0.16	2, 1893	
Wilmington, N. C.....	0.16	0 05	0.16	21, 1893	
Dodge City, Kans.....	0.16	0 05	0.16	14, 1892	
Washington, D. C.....	0.16	0 05	0.16	27, 1892	
Savannah, Ga.....	0.15	0 05	0.15	18, 1892	
Atlanta, Ga.....	0.15	0 05	0.15	12, 1892	
Milwaukee, Wis.....	0.15	0 05	0.15	15, 1893	
Do.....	0.15	0 05	0.15	12, 1893	
Wilkesbarre, Pa.....	0.14	0 05	0.14	14, 1893	
Wild Rice, N. Dak.....	0.14	0 05	0.14	14, 1893	
Black River Falls, Wis.....	0.14	0 05	0.14	14, 1893	
Greensboro, N. C.....	0.13	0 05	0.13	19, 1893	
Charleston, S. C.....	0.13	0 05	0.13	10, 1893	
Logansport, Ind.....	0.12	0 05	0.12	7, 1879	
Hess Road Station, N. Y.....	0.12	0 05	0.12	22, 1892	
Wilkesbarre, Pa.....	0.11	0 05	0.11	15, 1890	
Peoria, Ill.....	0.10	0 05	0.10	5, 1893	
Sciofield, Utah.....	0.10	0 05	0.10	21, 1893	
Benton Harbor, Mich.....	0.09	0 05	0.09	14, 1890	
Washington, Ark.....	0.08	0 05	0.08	24, 1893	
Fairfield, Iowa.....	0.08	0 05	0.08	21, 1892	
Columbus, Ga.....	0.08	0 05	0.08	10, 1890	
Newbern, N. C.....	0.08	0 05	0.08	20, 1892	
Jacksonville, Fla.....	0.07	0 05	0.07	6, 1886	
Sloan, N. C.....	0.07	0 05	0.07	2, 1893	
Fort Sully, S. Dak.....	0.06	0 05	0.06	5, 1893	
River Bend, Colo.....	0.06	0 05	0.06	26, 1893	
Wilcox, Nebr.....	0.05	0 05	0.05	16, 1893	
Springer, N. Mex.....	0.05	0 05	0.05	13, 1891	
Lansing, Mich.....	0.05	0 05	0.05	21, 1893	
Rock Island Arsenal, Ill.....	0.05	0 05	0.05	5, 1890	
Tucson, Ariz.....	0.10	1 45	0.10	12, 1893	

MONTHLY SNOWFALL (in inches and tenths).

Monthly snowfall was reported as follows: Pike's Peak, Colo., 3.0; Breckenridge, Colo., trace. At Bonanza City, Idaho, snow fell from 7 to 11 a. m. of the 6th, the amount of melted snow being 0.12.

HAIL.

Description of the more severe hailstorms reported for the month is given under "Local storms."

Hail was reported as follows: 1st, Colorado, Connecticut, Georgia, Iowa, Kansas, Nebraska, New Hampshire, New York, and North Dakota. 2d, Alabama, Colorado, Illinois, Indiana,

Kentucky, Michigan, Minnesota, New Mexico, North Dakota, South Carolina, and Wisconsin. 3d, Maryland, Montana, New Jersey, New York, North Carolina, Pennsylvania, South Carolina, South Dakota, Tennessee, Virginia, and West Virginia. 4th, Iowa, Maine, Minnesota, Montana, Nebraska, North Dakota, South Dakota, Virginia, and Wisconsin. 5th, Colorado, Connecticut, Missouri, New Jersey, New York, Pennsylvania, South Dakota, and Washington.

6th, Georgia, Iowa, Massachusetts, Ohio, Oregon, Tennessee, and Wyoming. 7th, Colorado, Indiana, Iowa, Michigan, Minnesota, North Carolina, North Dakota, Ohio, and Wisconsin. 8th, Colorado, Maryland, Minnesota, North Carolina, North Dakota, and Ohio. 9th, Arizona, Colorado, New Mexico, New York, North Carolina, and Wisconsin. 10th, Minnesota, Montana, North Carolina, South Carolina, and South Dakota. 11th, Colorado, Idaho, North Dakota, Utah, and Wisconsin. 12th, Nebraska, New Jersey, and Oregon. 13th, Iowa, Michigan, Montana, Nebraska, New Jersey, Pennsylvania, and Utah.

14th, Iowa, Montana, Nebraska, North Dakota, Utah, Virginia, and West Virginia. 15th, Iowa, Minnesota, Nebraska, New York, North Dakota, Ohio, and Pennsylvania. 16th, Iowa, Kansas, Michigan, Nebraska, and South Dakota. 17th, Colorado, Indiana, Kansas, Michigan, Missouri, Nebraska, New York, Pennsylvania, and South Dakota. 18th, Connecticut, Nebraska, New York, and South Carolina. 19th, Massachusetts. 21st, New York. 22d, Connecticut, Massachusetts, Nebraska, New York, Rhode Island, and Vermont.

23d, Massachusetts, Montana, New Hampshire, and Vermont. 24th, Florida, Minnesota, and North Dakota. 25th, Iowa, Michigan, Minnesota, Nebraska, and Nevada. 26th, Colorado, Connecticut, Florida, Maine, Maryland, Massachusetts, Nevada, North Carolina, North Dakota, Ohio, Tennessee, and Vermont. 27th, Colorado, Florida, Kansas, North Dakota, South Dakota, and Utah. 28th, Colorado, New Mexico, and South Dakota. 29th, Indiana, Mississippi, South Dakota, and Virginia. 30th, Illinois, Kentucky, Minnesota, and Ohio. 31st, North Carolina and Ohio.

WINDS.

The prevailing winds in July, 1893, are shown on Chart II by arrows flying with the wind. In the New England, middle Atlantic, and east Gulf states, the Ohio Valley and Tennessee, the upper lake region, the extreme northwest, the upper Mississippi valley, and along the north and middle Pacific coasts the winds were generally from southwest to northwest; over the Florida Peninsula, from east to southeast; in the south Atlantic states and over the northern plateau region, from south to southwest; in the west Gulf states and the Missouri Valley, from east to south; on the northeast slope of the Rocky Mountains, in the lower lake region, and over the southern and middle plateau regions, from southeast to southwest; on the middle-eastern slope of the Rocky Mountains, from southeast to south; on the southeast slope of the Rocky Mountains, from south to west; and on the north Pacific coast, from west to northwest.

HIGH WINDS.

(In miles per hour.)

Wind velocities of 50 miles, or more, per hour were reported at regular stations of the Weather Bureau as follows:

1st, 72, w., at Amarillo, Tex.; 54, nw., at Dodge City, Kans. 3d, 50, w., at Pierre, S. Dak. 7th, 64, w., at Pikes Peak, Colo.; 54, nw., at Detroit, Mich. 10th, 52, nw., at Havre, Mont. 14th, 60, nw., at Hatteras, N. C.; 52, w., at Valentine, Nebr. 15th, 80, sw., at Kearney, Nebr.; 59, nw., at Columbus, Ohio; 50, nw., at Cleveland, Ohio. 16th, 58, nw., at Concordia, Kans. 20th, 52, nw., at Havre, Mont. 24th, 60, sw., at Amarillo, Tex. 25th, 60, ne., at Pueblo, Colo. 28th, 50, nw., at Saint Louis, Mo.

LOCAL STORMS.

(75th meridian time is used at regular Weather Bureau stations.)

1st.—Hailstorms occurred in Vermont, eastern New York, the Dakotas, and Kansas, and a severe local rainstorm was reported near Pittsburg, Pa. At Albany, N. Y., a thunderstorm continued from 5.17 to 7.44 p. m. At Saratoga, N. Y., the rainfall was very heavy. Heavy hail fell at Sand Lake, N. Y. At Bath, N. Y., a barn was struck by lightning. About 3 p. m. a local rainstorm occurred near Sharpsburg, Allegheny County, Pa.; a creek which flows through Pleasant Valley into the Allegheny River was flooded, causing considerable damage to property. A thunder and hail storm was reported southeast of Woodbridge, N. Dak., and stock was killed by lightning at Langdon, N. Dak. Damage by hail was reported

at Glenwood, Nebr. A severe wind, rain, and thunder storm was reported at Cawker, Wakefield, and Dodge City, Kans.

2d.—Thunderstorms occurred in the Ohio Valley, Lower Michigan, Kansas, and Nebraska. At Madison, Ind., thunder was attended by heavy rain and hail. A hailstorm damaged crops south of Oswego, Ill. A heavy thunder, rain, and wind storm occurred at Detroit, Mich., in the afternoon. At Syracuse, Kans., a church was struck by lightning. At Oklahoma, Okla., a severe thunderstorm occurred in the early morning; two oil tanks were struck by lightning, and exploded.

3d.—Severe thunderstorms were reported in New York and Pennsylvania, and hailstorms occurred in South Carolina, Georgia, and Tennessee. A thunder and hail storm visited Maryland. Wind, rain, and hail caused damage about Hampton, S. C. Near Statesboro, Ga., 2 persons were killed by lightning. About Springdale, Tenn., corn and fruit were damaged by high wind and hail. One person was killed by lightning at West Point, Nebr.

4th.—Destructive local storms occurred in Maine and Missouri. From 1.30 to 3.20 p. m. a thunderstorm moved southeast along the Saco River, Maine. At Saco, Biddeford, and Old Orchard considerable damage was caused by wind and hail. At Saint Louis, Mo., a thunderstorm began 1.30 and ended 2.40 p. m. The barograph showed a decrease of pressure of .20 inch from 1 to 2.15 p. m., and a south gale continued from 2 to 3 p. m. Exceptionally severe thunder and rain storms occurred in central and western Missouri. Damage by hail was reported at Pleasant Valley and Alkali Creek, S. Dak.

5th.—Destructive thunderstorms occurred in the south New England states, New York, New Jersey, Pennsylvania, Louisiana, Michigan, Minnesota, and Nebraska. At night thunderstorms, with hail, caused damage of a minor character in Connecticut and on Long Island. A severe thunderstorm was reported at Rondout, N. Y. Camden, N. J., was visited by a hailstorm in the afternoon. At Philadelphia, Pa., a thunderstorm prevailed from 5.48 to 6.48 p. m., and hail fell for one minute. In the northern part of the city the storm was very destructive to frail buildings, etc. In the southern portion of the city the storm was scarcely felt. In the Schuylkill Valley great damage was caused by rain and hail. A hailstorm passed southward over Phoenixville, Pa., at 5.40 p. m. Two persons and some stock were killed by lightning at Donaldsonville, La. A heavy thunder, rain, and hail storm